

H11024

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. NA

Registry No. H-11024

LOCALITY

State California

General Locality Santa Barbara Channel

Sublocality Hueneme Canyon to Mandalay Beach

2001

CHIEF OF PARTY

Jon L. Dasler, David Evans and Associates

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HYDROGRAPHIC TITLE SHEET

H-11024

INSTRUCTIONS · The hydrographic sheet should be accompanied by this form,
filled in as completely as possible, when the sheet is forwarded to the office.

FIELD NO.

NA

State CaliforniaGeneral Locality Santa Barbara ChannelSublocality Hueneme Canyon to Mandalay BeachScale 1:10,000Date of Survey May 15 to July 29, 2001Instructions Date 3/1/2001Project No. OPR-L328-KR-01Vessel R/V ZepherChief of Party Jon L. DaslerSurveyed by Jon L. Dasler, Joanna Hawkins, Jason Creech, Jay Lazar, Alex Schneider,
Anna Pilette, Scott Cross, Nick LesnikowskiSoundings taken by echo sounder, hand lead, pole RESON 8101Graphic record scaled by David Evans and Associates (DEA)Graphic record checked by David Evans and Associates (DEA)Evaluation by B. Mihailov Automated plot by HP DesignJet 1050CVerification by G. Nelson, B. MihailovSoundings in Fathoms and tenths at MLLWREMARKS: Time in UTC.PHB Revisions: Report has been evaluated.Comments, revisions and corrections are entered as endnotes.All depths listed in this report are referenced tomean lower low water unless otherwise noted.UTM (Zone 11)

**Descriptive Report
To Accompany Hydrographic Survey H11024**

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Descriptive Report To Accompany Hydrographic Survey H11024

Scale 1:10,000
Year 2001

Senior Hydrographer, Jonathan L. Dasler, P.E., P.L.S.
Field Unit: David Evans and Associates, Inc.

A. AREA SURVEYED

David Evans and Associates, Inc. (DEA) conducted a navigable area survey of the Approaches to Port Hueneme, California, in accordance with Hydrographic Project Instructions OPR-L328-KR-01, dated March 21, 2001. The survey was assigned registry number H11024 and designated as Sheet "A". Data acquisition was conducted from May 15, 2001 (Day Number 135) to July 29, 2001 (Day Number 210).

The survey area for H11024 is located in Santa Barbara Channel at Port Hueneme, California (Figure 1). The survey area is 21.75 square nautical miles. The area encompasses the

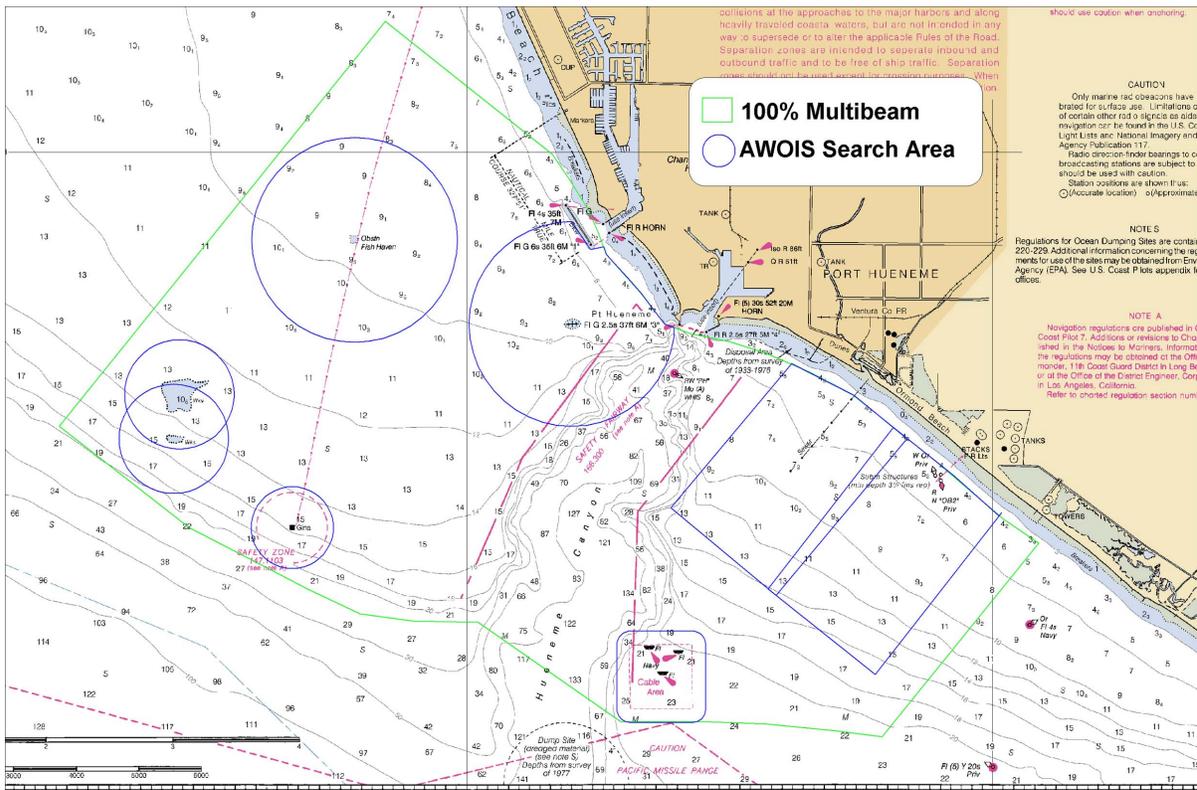


Figure 1. Port Hueneme survey limits.

approaches to Channel Islands Harbor and Port Hueneme. The shoaler water on either side of Hueneme Canyon was surveyed from the inshore sheet limits, or the 3 fathom curve, out to depths of 27 fathoms. The area encompassed eight Automated Wreck and Obstruction Information System (AWOIS) items, which includes the oil platform *Gina*. Hueneme Canyon, a deep-water safety fairway, runs down the center of the survey area. Depths in Hueneme Canyon range from 6 fathoms, at the entrance of Port Hueneme, to over 190 fathoms at the southern border of the survey area.

B. DATA ACQUISITION AND PROCESSING

For this project DEA implemented a state-of-the-art data acquisition and preliminary processing system aboard the Research Vessel (R/V) Zephyr, in accordance with National Oceanic and Atmospheric Association (NOAA) standards and modern remote sensing techniques.

B1. Equipment

Instrumentation used to conduct the survey and redundant systems to provide confidence checks consisted of the equipment listed in Table 1.

Table 1. Survey instrumentation.

| Instrument | Function | Serial Number |
|------------------------------------|---|----------------------|
| Reson SeaBat 8101 | Multibeam sonar with side-scan option. | 17024 |
| TSS POS/MV 320 (Version 3) | Integrated Differential Global Positioning System (DGPS) and inertial reference system for position, heading, heave, roll and pitch data. | 235 |
| Trimble 4000 SE | Secondary positioning system for Quality Assurance/Quality Control (QA/QC). | 3342A04196 |
| Trimble Probeacon | Obtain differential corrections from Lompoc, California differential beacon. | 0220094316 |
| Trimble ProXRS Model 33302-51 | Portable DGPS system for detached positions and establish GPS confidence checks. | 0224010291 |
| Odom Echotrac DF 3200 MKII | 200 kHz single beam echosounder for single beam comparison. | 9414 |
| SeaBird SBE-19 SeaCat CTD Profiler | Primary Conductivity, Temperature, and Depth (CTD) profiler for sound velocity profiles. | 1919847-2691 |
| SeaBird SBE-19 SeaCat CTD Profiler | Secondary CTD profiler for sound velocity profiles. | 1921127-2793 |

The R/V Zephyr, registry number 929931, was used for data acquisition for this survey. The R/V Zephyr has an aluminum hull, a 44-foot length overall, a 13-foot beam, weighs 34 gross

tons and has a draft of 5 feet. The R/V Zephyr is a commercial fishing vessel converted to conduct oceanographic research and hydrographic surveys. She is outfitted with a data acquisition lab, an over-the-side mount for the multibeam transducer and an a-frame for sampling and instrument deployment.

Detailed descriptions and figures of the R/V Zephyr and equipment are included in the Data Acquisition and Processing Report for Project OPR-L328-KR-01². There were no deviations in equipment configurations or survey vessel from those listed in the project-wide report.

B2. Quality Control

Quality control is discussed in detail in Section B of the Data Acquisition and Processing Report for Project OPR-L328-KR-01. Data was reviewed at multiple levels of data processing including swath editing, subset editing and analysis of anomalies revealed in sun-illumination. Any edits to the data were done at the swath or subset editing level to maintain data integrity such that all edits may be tracked throughout the data processing pipeline. No data was deleted but rather flagged as rejected and could be displayed and queried at any time during processing. Data acquisition statistics for the survey are listed in Table 2.

Table 2. Survey statistics.

| Description | Quantity |
|---------------------------------|-----------------|
| Days of Acquisition | 38 |
| Total Soundings (mainscheme) | 413,968,195 |
| Total Selected Soundings | 13,090 |
| Total Mainscheme (nm) | 1,335.7 |
| Total Crosslines (nm) | 90.3 |
| Total Mainscheme (no. of lines) | 949 |
| Total Crosslines (no. of lines) | 32 |
| Total Detached Positions | 1 |
| Total Square Nautical Miles | 21.75 |
| Velocity Casts | 210 |
| Tide Stations Installed | 0 |

B2.a Crossline Comparisons

Due to the sharp contrast in depths from Hueneme Canyon and the surrounding shoaler waters, three distinct areas were analyzed in the crossline comparison. The primary analysis was conducted on the shoaler areas (3 to 47 meters) on either side of Hueneme Canyon, which contained the majority of the designated survey area. Mainscheme lines in this area were surveyed parallel to the shore and bathymetric contours while crosslines were run perpendicular to shore. In addition, crossline analysis was conducted in the deeper waters of Hueneme Canyon. Hueneme Canyon was divided into two areas: depths less than 120 meters

and depths to over 300 meters. Mainscheme lines in Hueneme Canyon were surveyed perpendicular to shore and parallel with the canyon with crosslines run perpendicular to the mainscheme lines. Analysis of all crosslines used the same two-meter grid Digital Terrain Model (DTM) for the comparison surface, which is the same surface used for generation of sun-illuminated images. The crosslines collected in the shoaler primary area totaled 86.91 nautical miles or 6.51 percent. The crosslines collected in the canyon totaled 3.39 nautical miles or 0.25 percent. The total percent of crosslines to mainscheme is 6.76 percent. The statistical analysis of the data sets were conducted using the Universal Systems Limited (USL) makehist routine, version dated December 10, 1998. Three quality control reports were created listing statistics by beam number; one report for the primary area shoaler than 47 meters (Figure 2); one for the canyon to a depth of 120 meters; and one for the canyon to a depth of 300 meters. The full reports are included in Appendix V of this report. Refer to Classification Report 3 of 5 (of the Crossline Comparison in Appendix V) for percentage by beam number that passed the IHO Fourth Edition Order 1 requirements.

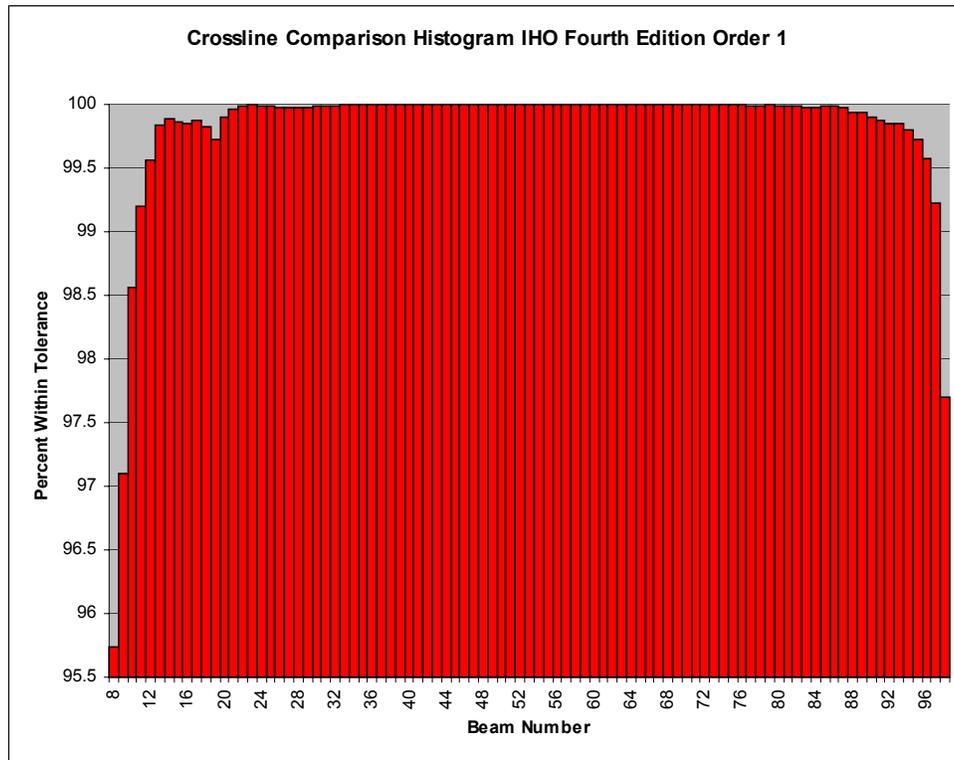


Figure 2. Primary crossline comparison histogram of confidence level by beam number.

Using the IHO standard equation of:

$$\sqrt{(a^2 + (b * d)^2)}$$

with a=0.500, b=0.013 and d =depth in meters (Fourth Edition Order 1)

the primary analysis showed greater than 95 percent of beams 8 through 98 met these criteria (Figure 2). The mean difference of the primary data set exhibited a maximum value of 9.5 centimeters. The majority of the differences were less than five centimeters.

The primary crossline set analyzed beams 1 through 101 of the sonar swath, beams 9 through 95 were used for sounding selection. Using the IHO Fourth Edition Order 1 criteria for the crossline analysis in Hueneme Canyon, a 95 percent confidence level was achieved on beams 19 through 80 to 120 meters and beams 29 through 71 to 300 meters. All beams selected in these areas passed the criteria at a 95 percent confidence level.

The frequency that each beam was selected on the Preliminary Smooth Sheet is shown in Figure 3. The sounding data used in shallow water relied on beams out to 54 degrees, while only beams out to a maximum of 45 degrees were used in deep water areas where poor returns from outer beams and refraction errors were prevalent. The higher frequency of selection of outer beams is expected. Outer beams will produce shoaler depths than inner beams as the result of grazing angle and refraction. Outer beam selection is more prevalent when the distance between selected soundings approaches the swath width on a uniform seafloor, such as the primary area above Hueneme Canyon. Figure 3 illustrates beams selected out to beam 9 (63 degrees to port) and beam 95 (66 degrees to starboard). This is the result of vessel roll and the dynamic beam angle selection.

The good agreement of the crosslines showed no systematic errors in multibeam acquisition and data processing routines. Minor differences could be attributed to errors from tidal zoning, extended heave and refraction from a transient sound velocity profile.

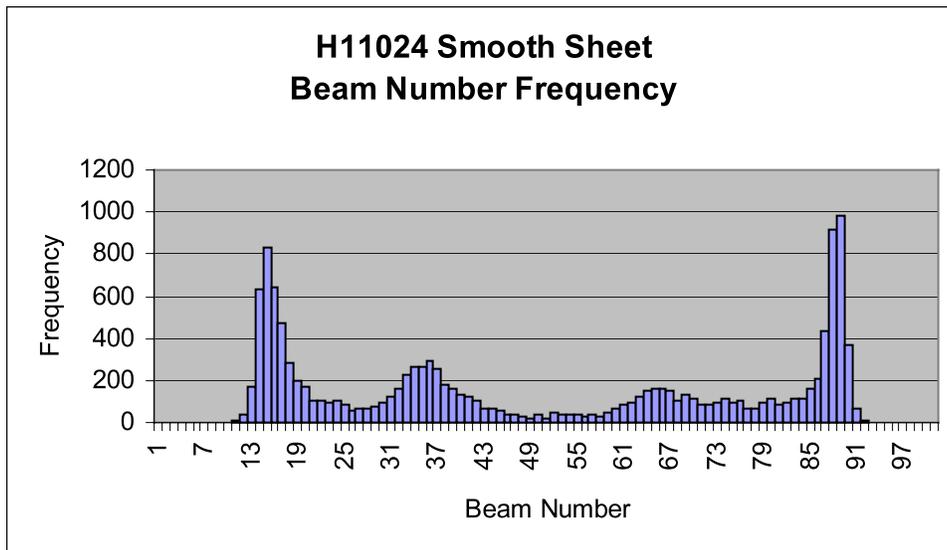


Figure 3. Selected sounding histogram for Survey H11024 Smooth Sheet.

B2.b Junctions³

This survey had no junctions for comparison.

B2.c Comparison with Prior Surveys⁴

Comparison with prior surveys was not required under this contract. See Section D1 for comparison to the nautical charts.

B3. Corrections to Echo Soundings

Detailed descriptions and figures of the corrections to echo soundings are included in the Data Acquisition and Processing Report for Project OPR-L328-KR-01. There were no deviations from those listed in the project-wide report.

C. VERTICAL AND HORIZONTAL CONTROL

C1. Vertical Control

National Ocean Service (NOS) existing tide station at Santa Monica (941-0840) was used for the survey in accordance with Attachment #7, dated March 1, 2001, of the Project Instructions. Zone PAC11 with a time corrector of +12 minutes and a range ratio of 0.98 was applied to the tide data.

The NOS tide station experienced no down time during periods of hydrographic survey. All data were successfully retrieved and are included on the tape with the HDCS processed data.

Detailed descriptions of the vertical control used can be found in the Vertical and Horizontal Control Report for Project OPR-L328-KR-01. There were no deviations from those listed in the project-wide report.

Evaluation of the tides applied was accomplished through crossline comparisons, comparing adjacent lines during Caris subset editing and analysis of the sun-illuminated images generated from 1 meter shoal biased multibeam data. Crossline comparisons are discussed in Section B2.a of this report and represent all errors associated with the survey. It is difficult to associate a precise vertical error due to tides. In general, errors observed are a composite from various sources such as measurement error, tides, heave, refraction, transducer draft, settlement and squat. However, when fill lines are run during different times in the tide cycle than mainscheme lines or at the juncture of lines from different days, artifacts from tides may be observed. Some artifacts as the result of tidal zoning were apparent after analysis of sun-illustrated images. Applied tides in problematic areas were reviewed and no errors were found in the application of smoothed-zoned tides. Artifacts from tidal zoning are attributed to the distance from the survey area to the NOAA tide station at Santa Monica. In accordance with the Specifications and Deliverables (June 2000), the minimum error expected as result of tides is 0.2 meters with a maximum allowable error of 0.45 meters.

Tidal zoning errors observed are within allowable limits. NOAA verified tides were reviewed for spikes and blunders and compared to predicted tides. No obvious blunders were detected.

C2. Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83). A Universal Transverse Mercator (UTM), Zone 11, projection was used with metric units when exporting to MicroStation to produce the Preliminary Smooth Sheet for the project.

Differential corrections were obtained from the differential GPS beacon at Lompoc, California (formerly designated as Vandenberg AFB). The survey area was located 80 nautical miles from Lompoc, California.

Detailed descriptions of the horizontal control used can be found in the Vertical and Horizontal Control Report for Project OPR-L328-KR-01.⁵ There were no deviations from those listed in the project-wide report.

D. RESULTS AND RECOMMENDATIONS

D1. Chart Comparison⁶

Five published charts, listed in Table 3, cover the survey area. From selected soundings on the Preliminary Smooth Sheet, comparisons were made to the depths on each of the charts.

Table 3. Charts covering the survey area.

| Chart | Scale | Edition | Date |
|--------------------|--------------|------------------|------------------|
| 18020 | 1:1,444,000 | 36 th | January 27, 2001 |
| 18022 | 1:868,003 | 32 nd | July 15, 2000 |
| 18720 | 1:232,188 | 31 st | July 29, 2000 |
| 18725 ⁷ | 1:50,000 | 26 th | October 11, 1997 |
| 18740 | 1:234,270 | 39 th | July 28, 2001 |

The area surveyed encompasses the approaches to Port Hueneme, California, out to depths of 27 fathoms. Five charts, listed in Table 3 above, cover the survey area. A total of five buoys and one oil platform were observed and positioned in the area.

D1.a Notice to Mariners Issued During the Survey⁸

DEA evaluated all Notice to Mariners from the start of the survey operations through the end of the survey operations. The review resulted in the following:

SURVEY: H11024
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LNM 20/01: Revisions of soundings and depth legends on chart 18725. Substitute various soundings in the vicinity of the Channel Islands Harbor entrance, and change the depth legends to NOV 2000 specifications. These revisions were made to the 26th edition of chart 18725 prior to the chart comparison.

LNM 32/01: Discrepancies in Aids to Navigation.
#3640 Channel Islands Harbor South Jetty Light 2 Status: Fog Signal Inoperative

LNM 33/01: Discrepancies Corrected.
#3640 Channel Islands Harbor South Jetty Light 2 Status: Watching Properly

LNM 38/01: Discrepancies in Aids to Navigation.
#3630 Channel Islands Harbor Breakwater South Light 1 Status: Extinguished

LNM 38/01: Discrepancies Corrected.
#3630 Channel Islands Harbor Breakwater South Light 1 Status: Watching Properly

D1.b Depth Comparison

Chart 18020

Chart 18020, 36th Edition, January 27, 2001, is a 1:1,444,000 scale chart and covers the entire survey area with one sounding. The sounding of 13 fathoms represents the survey area relatively well given the scale of the chart. The 30-fathom contour should be modified to more accurately define Hueneme Canyon.⁹

Chart 18022

Chart 18022, 32nd Edition, July 15, 2000, is a 1:868,003 scale chart and covers the entire survey area with three soundings. The three soundings are relatively a good representation of the area given the scale of the chart. The 30-fathom contour approximates the definition of Hueneme Canyon.¹⁰

Chart 18720

Chart 18720, 31st Edition, July 29, 2000, is a 1:232,188 scale chart and covers the entire survey boundary. Chart 18720 is in relatively good agreement with the hydrographic survey. Exceptions are the danger curve for the wrecks northwest of the oil platform *Gina* should be expanded to encompass the surveyed boundary of obstructions and the least depth revised to 11 fathoms from the charted 10 fathoms. Contours in Hueneme Canyon could be modified slightly but are in general agreement with the survey. East of Hueneme Canyon, the 20-fathom contour was surveyed 200 meters shoreward than the charted contour.¹¹

Chart 18725

Chart 18725, 26th Edition, October 11, 1997, is a 1:50,000 scale chart and encompasses the entire survey area. The chart is in good agreement with the hydrographic survey, with some minor exceptions, and the Danger to Navigation Reports.

At the entrance to Channel Islands Harbor, a charted 5 fathom 2 feet sounding was surveyed at 4 fathoms 1 foot. Local Notice to Mariners No. 20 revised the 3 fathom 4 feet sounding, located off the western end of the breakwater at the northwest entrance, to 4 fathoms 4 feet, which matches surveyed depths. Southwest of this position 230 meters, a 3 fathom 0 foot sounding was surveyed. The main chart does not reflect this 3 fathom shoal but the inset does show a 3-fathom shoal in this location. The 3-fathom contour inshore of this area was surveyed 90 meters inshore of the charted 3-fathom contour.¹²

The reported minimum depth for the submerged structures off Ormond Beach of 3¼ fathoms was surveyed to be 2 fathoms 5 feet.

Hueneme Canyon was surveyed deeper than what is charted.¹³

A deepening trend can be seen southeast of the entrance to Port Hueneme along Ormond Beach. The 6-fathom contour was surveyed 280 meters inshore of what is charted, except over the charted sewer pipeline, where the contour is approximately 550 meters inshore.¹⁴

A shoaling trend can be seen northwest of Hueneme Canyon. The charted 10-fathom curve matches surveyed depths at Hueneme Canyon. Proceeding west, the surveyed 10-fathom contour migrates offshore from the charted 10-fathom contour to approximately 500 meters at the western limits of the survey. The charted 12-20, 30, 50 and 100-fathom contours match surveyed depths.¹⁵

The danger curve for the wrecks, northwest of the oil platform *Gina*, match the surveyed delineation with only minor adjustments required. The charted least depth of 10 fathoms 5 feet should be revised to 11 fathoms.¹⁶

Chart 18725 (Inset)

Chart 18725, 26th Edition, October 11, 1997, is a 1:12,500 scale chart inset of Channel Islands Harbor and Port Hueneme. The chart is in good agreement with the following exceptions and Dangers to Navigation Reports.

The charted 9 fathom 5 feet sounding in the Port Hueneme safety fairway was surveyed at 7 fathoms 4 feet. The charted 13 fathoms immediately to the south of the 9 fathoms 5 feet was surveyed at 11 fathoms 3 feet. The charted 14-fathom sounding due east of the 13, also in the safety fairway, was surveyed at 11 fathoms 5 feet.¹⁷

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The charted 6-fathom contour matches surveyed depths. The charted 3-fathom contour northeast of the western end of the Channel Islands Harbor breakwater outlines a shoal projecting from shore. The surveyed 3-fathom contour in this area does not reflect the shoal. Proceeding southeast, the charted 3-fathom contour moves shoreward of the surveyed 3-fathom curve.¹⁸

The embayment inside the Channel Islands Harbor breakwater, north of the north jetty, showed some deviations from charted depths. A 1 fathom 1 foot sounding was surveyed offshore of the charted 4 fathom 2 foot sounding. The charted 3 fathom 4 feet sounding 120 meters northwest of the 4 fathom 2 feet was surveyed a 1 fathom 1-foot.¹⁹

Southwest of the southern jetty for the Channel Islands Harbor, a charted sounding of 5 fathoms 1 foot was surveyed at 3 fathoms. The charted 3-fathom contour in this area is 80 meters inshore of the surveyed 3-fathom curve.²⁰

Chart 18740

Chart 18740, 39th Edition, July 28, 2001, is a 1:234,270 scale chart and crops the northern extent of the survey area above latitude 34° 8' 52" N. The chart is in good agreement with the hydrographic survey. The northernmost-charted 10-fathom shoal was surveyed at 11 fathoms. The 10-fathom curve matches the survey well with the exception of the area surrounding the previously mentioned sounding. The wrecks northwest of the oil platform *Gina* should be revised from the charted 10 fathoms to the surveyed least depth of 11 fathoms. The danger curve should be expanded to encompass the surveyed boundary of obstructions. The 3¾ charted sounding east of buoy "PH" was surveyed at 5 fathoms. The charted 10-fathom curve east of the canyon matches the survey reasonably well.²¹

D1.c Feature Comparison

Chart 18725

Survey H11024 feature comparison to Chart 18725 showed relatively good agreement with only minor differences.

The discharge structures offshore of Ormond Beach were surveyed 100m offshore of the charted buoy position for "OB2". The designation "OB2" was not observed on the buoy and the designation should be removed from the chart.²² Two buoys that warn of this hazard were surveyed and the chart should reflect their surveyed position.²³

The Navy mooring buoys associated with the charted "Cable Area", AWOIS item 52716, were not observed during this survey and should be removed from the chart.²⁴

The oil platform, *Gina*, was surveyed 50 meters east of the charted position. The associated submerged pipeline was surveyed at the charted position until 11 fathoms. Inshore of 11 fathoms the pipeline could not be detected and is assumed buried in the seafloor.²⁵

The sewer outfall off Ormond Beach was surveyed 30 meters northwest of the charted position. The offshore end of the outfall matched the charted position.²⁶

D1.d AWOIS Items²⁷

Eight AWOIS items were assigned to survey H11024 for investigation. One hundred percent multibeam ensonification of the seafloor was used to investigate the eight items. The AWOIS search area for the eight items fell inside the survey boundary. No additional work was required for investigating the items.

AWOIS 52710 is the southern half of the sunken wreck *La Janelle* with a search radius of 800 meters. Numerous items were detected within a 200-meter radius. A danger curve around the obstructions was delineated from the sun-illuminated imagery of the multibeam data. A depth of 13 fathoms 3 feet was selected from the multibeam data to represent the features least depth. It is recommended that the wreck area be charted with a depth of 13 fathoms 3 feet.²⁸

AWOIS 52711 is the northern half of the sunken wreck *La Janelle* with a search radius of 800 meters. The charted depth is 10 fathoms 5 feet. The debris associated with this portion of the wreck falls within a 450-meter radius of the recorded position with the position being in the approximate center of the debris. A danger curve around the obstructions was delineated from the sun-illuminated imagery of the multibeam data. Due to the large area, two least depths were identified with this item. A depth of 11 fathoms 5 feet was selected from the multibeam data to represent the features least depth at the offshore end. A depth of 11 fathoms was selected from the multibeam data to represent the features least depth at the inshore end. It is recommended that the chart reflects these least depths obtained by this survey and that the wreck area be enlarged to include the additional debris located outside the existing danger curve.²⁹

AWOIS 52712 is an obstruction charted as a fish haven with a search radius of 1500 meters. The artificial reef is reported to have been the discharge of fill material consisting of tires, concrete blocks and polypropylene rope. The analysis of the digital sun-illuminated model shows the field of debris extending 600 meters to the south of the recorded position. There does not appear to be any debris to the north. The surveyed soundings associated with the field of debris do not reflect a deviation from the surrounding seafloor. It is recommended that the area of obstruction reflect the field of debris observed by this survey.³⁰

AWOIS 52713 is the unknown dangerous sunken wreck of a torpedo retriever with a 1,500-meter search radius. The search area was not to extend beyond the limits of this survey or beyond the Channel Islands Harbor breakwater. Nothing was located in the immediate vicinity of this charted danger to navigation. An obstruction that was reported as a danger during this survey was located 1,310 meters northwest of the recorded position for this item. The obstruction measures 45 meters in length and 20 meters in width and was determined to have a least depth of 7 fathoms 5 feet. There is no other feature inside the search radius

resembling a dangerous sunken wreck and it is recommended that the wreck be removed from chart 18725 and an obstruction of 7 fathoms 5 feet be added at the surveyed position.³¹

AWOIS 52714 is the ocean outfall at Oxnard, CA. The search area is 3,000 meters in length and 2,000 meters in width. This surveyed alignment of the outfall is 30 meters northwest of the charted position. The offshore end of the outfall matched the charted position. The charted soundings agree with the depths observed on the western side of the outfall. A predominant westerly current has accumulated sediment on the west side of the outfall and scoured the seafloor to the east. The AWOIS history describes a white and orange privately maintained buoy with designation "A" at the offshore terminus of the outfall. No buoy was observed. A second submerged pipeline was observed 950 meters northwest of the Oxnard outfall. The uncharted submerged pipeline runs approximately 1,300 meters offshore and rises approximately 1 meter off the seafloor. The pipeline could no longer be detected past 7 fathoms 2 feet. It is recommended that the alignment of the charted outfall be revised to match the surveyed position and the second pipeline be added.³²

AWOIS 52715 determines the extent of a pipeline and moorage facility permitted to be built 8,200 feet offshore of Ormond Beach. The search area is a rectangle 3,000 meters in length and 2,000 meters in width. It is stated in the record that the pipeline and moorage facility has not been built and there is no evidence of their existence in the multibeam data. Engineering drawings also depict an intake and discharge structure at a depth of 20 feet MLLW. The chart represents the intake and discharge structures with buoys positioned parallel to shore. The survey observed the buoys and structures to be perpendicular to shore. A least depth of 3¼ fathoms is charted and a least depth of 2 fathoms 5 feet was observed on the inshore structure and 3 fathoms 2 feet on the offshore structure. There was no evidence of a pipeline projecting above the seafloor. It is recommended that the least depth obtained by this survey supercede that charted and that the buoy placement reflect the actual alignment of the submerged structures.³³

AWOIS 52716 is a cable area with three construction moorings. The search area was to extend 200 meters beyond the charted cable area. Three small features were observed from this survey on the seafloor. They are most likely the concrete anchor blocks for the mooring buoys. These features are in good agreement with the charted moorings. No mooring buoys were observed during this survey. It is recommended that the moorings be removed from the chart.³⁴

AWOIS 52717 is the oil platform *Gina* with a 600-meter search radius around the platform and a buffer of 150 meters on either side of the charted pipeline to determine its placement. A shell or debris mound associated with the wellhead is directly under the oil platform. A least depth of the mound under the platform was selected from the multibeam data at 13 fathoms 1 foot. The selected sounding was moved to the excess layer 63 on the Preliminary Smooth Sheet as it conflicted with the position of the oil platform. The charted platform position is 50 meters west of the observed platform. The associated submerged pipeline was surveyed at the charted position until 11 fathoms. Inshore of 11 fathoms the pipeline could

not be detected and is assumed buried in the seafloor. A mooring buoy associated with the platform, designated “*Gina*”, was observed and positioned during the survey. It was positioned from detection of the anchor block from the multibeam data. No navigational aids or lights were observed on the platform. It is recommended that the charted information reflect the differences observed by this survey.³⁵

D1.e Danger to Navigation Reports

Twelve³⁶ items located during the survey initiated four Danger to Navigation Reports and one revised report submitted to the Pacific Hydrographic Branch (PHB), in Seattle, Washington. A summary of the reports follows; copies of the reports sent to PHB are included in Appendix I.³⁷

The first three reports were submitted to PHB during survey operations. The remainder was found while analyzing the multibeam data and sun-illuminated models. They were submitted to PHB after confirmation.

Danger to Navigation Report Number One

This danger to navigation report contained one item, a spar buoy. The spar buoy is located 3.28 nautical miles northwest of buoy RW “PH”. Reportedly, it was placed by the Anacapa Sailing Club to be used as a permanent weather buoy for sailing regattas.

Danger to Navigation Report Number Two

This danger to navigation report contained five items. The majority of the items were obstructions within 1,000 meters of the Channel Islands Harbor Breakwater or within 2,300 of the oil platform *Gina*. The most significant item was found 560 meters southeast of AWOIS 52714, *Fish Haven*. The obstruction was measured at 45 meters in length, 20 meters in width and rises 1.03 meters off the seafloor. It is speculated that this obstruction may be associated with AWOIS 52713, the unknown dangerous sunken wreck of a torpedo retriever, as it is located in the outer area of the search radius. When this obstruction was first turned in to PHB as a danger to navigation, the position was initially reported incorrect and was revised in a later Revised Danger to Navigation Report.

Danger to Navigation Report Number Three

This danger to navigation report contained three items. The items were obstructions in the vicinity of the Oxnard sewer outfall.

Danger to Navigation Report Number Four

The fourth danger to navigation report contained three items. The items were additional obstructions in the vicinity of the Oxnard sewer outfall.

Revised Danger to Navigation Report

This danger to navigation report revises the position of the first item in the second submitted danger to navigation report.

D2. Additional Results

D2.a Shoreline Investigations

Not applicable. Shoreline verification was not required. The shoreline depicted on the Smooth Sheet was digitized in MapInfo from chart 18725 and is for reference purposes only. The Channel Islands Harbor breakwater was delineated using the sun-illuminated image from the multibeam data. It is recommended that chart 18725 be revised with the delineated outline of the breakwater from survey H11024.

D2.b Prior Survey Comparison³⁸

Comparison with prior surveys was not required under this contract. See Section D.1 for comparison to the nautical charts.

D2.c Aids to Navigation³⁹

Five navigational aids are within the survey limits. The positions of the navigational buoys were obtained by locating the anchor blocks with the multibeam data. Both the anchor blocks and chains were observed while surveying lines adjacent to the navigational aids. GPS-derived buoy positions were used to verify anchor block positions. Positions of all the aids were compared to both the charted positions and to the position listed in the Light List Volume VI, Edition 2001 and corrected through the U.S. Notice to Mariners No. 46/2001; differences are noted below in Table 4.

Buoy R “OB2” shown on chart 18725 is not labeled. The buoy, in conjunction with buoy W Or, marks the submerged intake and discharge structures off of Ormond Beach. The buoys are charted incorrectly as parallel with the shoreline. Buoy R “OB2” marks the offshore structure, while buoy W Or marks the inshore structure. It is recommended that the designation of “OB2” be removed from the chart⁴⁰ as the buoy is not labeled and chart 18725 be adjusted to show the actual positions of the buoys.

Spar buoy “W” is not charted on any of the charts covering the Port Hueneme area. The buoy was reportedly placed by the Anacapa Sailing Club as a permanent weather buoy for sailing regattas. It is recommended that spar buoy “W” be charted on all appropriate charts for mariner safety.⁴¹

The mooring buoy labeled “Gina” is not charted on any of the charts covering the Port Hueneme area. It is located approximately 110 meters north of AWOIS item 52717, the oil

SURVEY: H11024
FIELD UNIT:
DAVID EVANS AND ASSOCIATES, INC.

platform *Gina*. It is recommended that the mooring buoy be placed on all appropriate charts for mariner safety.⁴²

Chart 18725 depicts three mooring buoys in the cable area, AWOIS item 52716, southwest of Hueneme Canyon. No moorings were observed during this survey. It is recommended that the moorings be removed from the chart.⁴³

No buoy was observed at the Ormond Beach sewer outfall as indicated in AWOIS item 52714.

All buoys, except RW “PH”, are privately maintained and their charted positions differ significantly from the observed locations. All the aids were functional and served their purpose.

Table 4. Positions of aids to navigation.

| Name | Type | Survey Position | Chart 18020 Position | Chart 18022 Position | Chart 18720 Position | Chart 18725 Position | Chart 18740 Position |
|----------------------|------|-----------------------------------|----------------------|---|--|--|--|
| R "OB2" | Buoy | 34° 07' 22.00" 119° 10' 31.95" | Not Charted | Not Charted | Not Charted | 34° 07' 24.02" 119° 10' 29.89" 81m* | Not Charted |
| W Or | Buoy | 34° 07' 26.19" 119° 10' 27.22" | Not Charted | Not Charted | 34° 07' 23.77" 119° 10' 33.49" 177m* | 34° 07' 26.40" 119° 10' 32.95" 146m* | Not Charted |
| RW "PH" | Buoy | 34° 08' 15.80" 119° 13' 00.56" | Not Charted | 34° 08' 16.80" 119° 12' 58.68" 57m* | 34° 08' 10.39" 119° 12' 58.61" 174m* | 34° 08' 15.22" 119° 13' 01.76" 35m* | 34° 08' 09.64" 119° 12' 52.67" 277m* |
| Spar Buoy "W" | Buoy | 34° 09' 54.45" 119° 16' 27.23" | Not Charted | Not Charted | Not Charted | Not Charted | Not Charted |
| MB Gina | Buoy | 34° 07' 06.85" 119° 16' 38.96" | Not Charted | Not Charted | Not Charted | Not Charted | Not Charted |

* Difference between charted and surveyed position.

D2.d Overhead Clearance

There are no overhead bridges, cables or other structures, which would impact overhead clearance in the survey area.

D2.e Cables and Pipelines

There are three submerged pipelines, one intake structure and a discharge structure within the survey area. When the pipelines were on the surface of the seafloor they were detected with the multibeam sonar. The alignment was easy to identify in the sun-illuminated imagery of the multibeam data. The sun-illuminated imagery was used to chart the alignment of exposed pipelines and alignments were transferred to the Preliminary Smooth Sheet. There is an uncharted submerged pipeline northwest of the sewer outfall that runs approximately 1,300 meters offshore and rises approximately 1 meter of the seafloor. The alignment of the sewer outfall off of Ormond Beach and the pipeline out to the oil platform “*Gina*” matched relatively well between the surveyed position and the charted position. For a more detailed description of the oil pipeline and the sewer outfall and intake/discharge structures, see Section D1.d, AWOIS items.

D2.f Environmental Conditions Impacting the Quality of the Survey

Although the survey meets the required accuracy, several environmental conditions affected the quality of the survey. Changes in the sound velocity profile, both spatial and temporal, impacted refraction compensation during the survey and some areas were resurveyed as a result. Refraction errors are discussed in detail in the Data Acquisition and Processing Report for Project OPR-L328-KR-01. It is unclear if this was a result of ocean upwelling from offshore or transient anomalies in the Santa Barbara Channel currents. To compensate for these changes, frequent casts were observed within the immediate area being surveyed. Additionally, the swath width was reduced to 45 degrees in deep water. Artifacts from vessel heave can be observed in some areas of the sun-illuminated images. Heave artifacts are the result of extended period swells prevalent along the Pacific Coast. All errors observed are within allowable limits.

D2.g Construction Projects

There were no construction projects during periods of hydrography. Evidence of hydraulic dredging operations is apparent in the sun-illuminated imagery from the multibeam data at the entrance to Channel Islands Harbor. No dredging activity was observed during the survey.

D2.h Recommendations

It is recommended that charts be updated to reflect survey H11024 as discussed in this report.⁴⁴ Significant changes include:

- Addition of the 12⁴⁵ dangers to navigation identified in the survey.⁴⁶
- Revise soundings and contours identified in the chart comparison.⁴⁷
- Removal of the wreck identified as AWOIS item 52713. There is no danger in the vicinity of the wreck other than the danger identified at the limits of the search radius.⁴⁸
- Revise least depths and danger curves for AWOIS items 52710 and 52712.⁴⁹
- Revise the alignment for the ocean outfall at Oxnard and add the uncharted pipeline, identified as AWOIS item 52714.⁵⁰
- Revise the least depths and buoy positions at the Ormond Beach intake and discharge structures, identified as AWOIS item 52715.⁵¹
- Removal of the Navy mooring buoys in AWOIS item 52716.⁵²
- Addition of the mooring buoy at oil platform *Gina*, identified as AWOIS item 52717.⁵³

APPROVAL SHEET

Descriptive Report To Accompany Hydrographic Survey H11024

Standard field surveying and processing procedures were followed in producing this survey in accordance with the NOS Hydrographic Surveys, Specifications and Deliverables (June 2000). The survey is complete and adequate for charting purposes and no additional work is required. I personally supervised this survey during data acquisition and processing.

The following references are helpful in verifying and evaluating this survey.

1. Hydrographic Project Instructions OPR-L328-KR-01, NOAA, May 21, 2001.
2. NOS Hydrographic Surveys Specifications and Deliverables, June 2000.
3. NOAA Chart 18725, edition 26, scale 1:50,000, October 11, 1997.
4. NOAA Chart, 18740 edition 39, scale 1:234,270, July 28, 2001.

Other reports submitted for Project OPR-L328-KR-01 include:

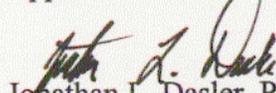
1. Data Acquisition and Processing Report for H11024, October 2001.
2. Vertical and Horizontal Report for H11024, October 2001.

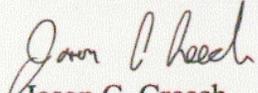
The following items are approved for stated accuracy and completeness in hydrographic survey H11024.

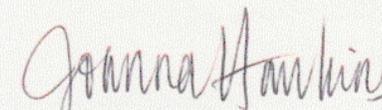
1. Preliminary Smooth Sheet.
2. Multibeam Sun-Illuminated Images (2).
3. Multibeam Sonar Swath Coverage Plot.
4. Tapes of digital data.
5. Associated records supporting the survey.

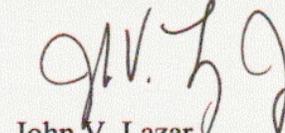
The plots, data and supporting records have been reviewed by me and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Approved and forwarded,


Jonathan L. Dasler, P.E., P.L.S.
Senior Hydrographer
Senior Associate
Director of Hydrographic Services
David Evans and Associates, Inc.


Jason C. Creech
Lead Hydrographer
David Evans and Associates, Inc.


Joanna L. Hawkins
Lead Hydrographer
Associate
David Evans and Associates, Inc.


John V. Lazar
Lead Hydrographer
David Evans and Associates, Inc.

Revisions Compiled During Office Processing and Certification

¹ PHB Revision- All separates are filed with the survey records.

² PHB Revision- All separates are filed with the survey records.

³ PHB Revision-There is no contemporary junctional surveys with H-11024.

⁴ PHB Revision-Prior surveys H-9666 and H-9725 are the source data for much of the existing charted soundings and features. These surveys were conducted using single beam echo sounders and a pneumatic depth gage for dive investigations. Positioning was accomplished using Min-ranger. Comparison with H-11024 was made using digital copies of the prior surveys. The registration and legibility of the prior survey work to the present survey was good. H-9666 and H-9725 covers the entire area of the present survey. Comparison of the soundings with the present surveys reveals general differences of 1-4 feet, with the present survey generally shoaler. The exception being the 10 fathom depth curve west of longitude 119°14'00"W which has migrated offshore as much as 500 meters towards the western extent of the survey limits.

Survey H-11024 is adequate to supersede the prior surveys within the common area.

⁵ PHB Revision- All separates are filed with the survey records.

⁶ PHB Revision-Charted hydrography originates with the previously discussed prior surveys, which have been adequately addressed in endnote #4. Present survey depths reflect a shoal bias and generally differ from 1-4 feet. Survey H-11024 is adequate to supersede charted hydrography within the common area.

⁷ PHB Revision-Chart 18725 has a 1:12,500 scale inset which survey H-11024 falls within.

⁸ PHB Revision-Ten dangers to navigation were identified during survey operations. No additional dangers to navigation were identified during office processing at PHB. These dangers were reported to the USCG, NIMA, and N/CS261.

⁹ PHB Revision-concur

¹⁰ PHB Revision-concur

¹¹ PHB Revision-concur

¹² PHB Revision-concur, chart 4₁ fathoms sounding at latitude 34°09'38.73"N, longitude 119°14'03.32"W. Chart 3 fathom sounding at latitude 34°09'32.99"N, longitude 119°13'56.75"W

¹³ PHB Revision-South of latitude 34°06'30"N in depths greater than 121 fathoms.

¹⁴ PHB Revision-concur

¹⁵ PHB Revision-concur

¹⁶ PHB Revision-concur, shoalest depth within this area is 11 fathoms located at latitude 34°08'10.60"N, longitude 119°17'26.94"W.

¹⁷ PHB Revision-Chart 7₄ fathoms at latitude 38°08'31.73"N, longitude 119°12'56.97"W.

Chart 11 fathoms at latitude 38°08'29.77"N, longitude 119°12'58.51"W.

Chart 12 fathoms at latitude 38°08'29.95"N, longitude 119°12'53.42"W.

¹⁸ PHB Revision-Chart area as shown on smooth sheet.

¹⁹ PHB Revision-Chart area as shown on smooth sheet.

²⁰ PHB Revision-Chart 3 fathoms sounding at latitude 34°09'19.11"N, longitude 119°13'41.9"W.

²¹ PHB Revision-concur, chart area as shown on smooth sheet.

²² Do not concur. Retain buoy designation as charted.

²³ PHB Revision-concur, see AWOIS item 52715 for additional information.

-
- ²⁴ PHB Revision-Concur, remove mooring buoys but the cable area note will be retained as charted.
- ²⁵ PHB Revision-Revise charted position of the oil platform *Gina* as shown on smooth sheet.
- ²⁶ PHB Revision-See AWOIS item 52714 for additional information.
- ²⁷ PHB Revision – Revised copies attached.
- ²⁸ PHB Revision-Area is located at latitude 34°07'44.6N, longitude 119°17'47.0"W. Revise area limits as shown on smooth sheet. Chart 13 fathoms at latitude 34°07'50.0"N, longitude 119°17'35.0"W.
- ²⁹ PHB Revision-Area is located at 34°08'05.6"N, longitude 119°17'43.9"W Chart 11 fathoms sounding at latitude 34°08'10.6"N, longitude 119°17'43.9"W. The 11 fathoms and 5 feet which should be charted as 12 fathoms was not charted due to the scale of chart.
Revise area limits as shown on smooth sheet.
- ³⁰ PHB Revision-Retain charted *Obstn Fish Haven*. Chart surrounding area as shown on smooth sheet.
- ³¹ PHB Revision-Delete *subm* wreck symbol located at latitude 34°08'39"N, longitude 119°13'59.5"W. Chart *7₅ Obstn* at latitude 34°09'09.54"N, longitude 119°14'35.29"W.
- ³² PHB Revision-Revise alignment of charted outfall as shown on smooth sheet. Chart observed pipeline as shown on smooth sheet.
- ³³ PHB Revision-Chart buoys at survey locations. Revise charted note to reflect *Subm Structures (2 fathoms 5 feet)*.
- ³⁴ PHB Revision-concur, delete lighted mooring.
- ³⁵ PHB Revision-Revise charted platform *Gina* to the surveyed position of latitude 34°07'03.06"N, longitude 119°16'37.56"W.
- ³⁶ PHB Revision-Revise to ten items reported.
- ³⁷ PHB Revision-All four DTON reports have been combined into one DTON report at PHB and submitted. A copy of this report is attached.
- ³⁸ PHB Revision-see endnote #4.
- ³⁹ PHB Revision-Five floating aids to navigation were located within the survey area and adequately serve the purpose intended. Several other fixed aids to navigation fall in the proximity of the survey limits but were not addressed and should remain as charted. Landmarks within the survey area were not addressed by the hydrographer and should be retained as charted.
- ⁴⁰ Do not concur. Retain as charted.
- ⁴¹ Concur
- ⁴² Concur
- ⁴³ Concur
- ⁴⁴ Concur
- ⁴⁵ PHB Revision-Revise to 10 DTON's.
- ⁴⁶ Concur
- ⁴⁷ Concur
- ⁴⁸ Concur
- ⁴⁹ Concur
- ⁵⁰ Concur
- ⁵¹ Concur
- ⁵² Concur

12/6/01

DEC 06 2001



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
Pacific Hydrographic Branch
Seattle, Washington 98115-6349

MEMORANDUM FOR: Jeffrey Ferguson, NOAA
Contracting Officer's Technical Representative

FROM: Gary C. Nelson *Gary C. Nelson*
Assistant Contracting Officer's Technical Representative
Pacific Hydrographic Branch

SUBJECT: 30-DAY Acceptance Review of H-11024

The Pacific Hydrographic Branch has conducted a 30-day acceptance review of the following contract hydrographic survey:

Registry No: H-11024
State: California
General Locality: Santa Barbara Channel
Locality: Hueneme Canyon to Mandalay Beach
Contractor: David Evans and Associates
Project: OPR-L328-KR-01
Contract No: 50-DGNC-9-90011
Date Received by PHB: November 9, 2001
30 Day Review by: December 6, 2001

The data submitted for H-11024 were reviewed for compliancy with the Statement of Work.

The 30-day review included but was not limited to the following:

1. An inventory of specified deliverables
2. A review of the SWMB Patch Test data to confirm proper bias values
3. A qualitative review of SWMB cross line comparison data.
4. An examination of the DTM, created by David Evans, with the smooth sheet overlaid to ensure shoal areas were portrayed correctly on the smooth sheet.
5. A CARIS workfile of selected shoal soundings was created to compare with the smooth sheet. The comparison was used to verify valid shoal soundings were carried through to the smooth sheet.
6. A preliminary comparison of prior surveys and appropriate nautical charts with the smooth sheet was completed.
7. The data were reviewed for appropriate application of biases, sound velocity, and tides.
8. A preliminary review of the Descriptive Report and smooth sheet. (Note: The results of the final review will be detailed in the Evaluation Report).



Based upon the review, it is concluded that H-11024 has no major deficiencies that would deem it out of compliance with the Statement of Work. It is recommended that H-11024 be accepted.

cc: John Lowell
Dennis Hill

Danger to Navigation Report

Hydrographic Survey Registry Number: H11024

Survey Title: State: CA
Locality: Santa Barbara Channel
Sub-locality: Hueneme Canyon to Mandalay Beach

Project Number: OPR-L328-KR-01

Survey Dates: May 15 - July 29, 2001

Depths are reduced to Mean Lower Low Water using verified tides.
Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

| CHART | EDITION | DATE | SCALE |
|-------|---------|------------------|-----------|
| 18725 | 26th | October 11, 1997 | 1:50,000 |
| 18720 | 31st | July 29, 2000 | 1:232,188 |
| 18740 | 39th | July 28, 2001 | 1:234,270 |

DANGERS:

| FEATURE | DEPTH (Chart Units) | LATITUDE(N) | LONGITUDE(W) |
|-------------|------------------------|---------------|----------------|
| Spar Buoy | N/A | 34° 09' 54.5" | 119° 16' 27.2" |
| Obstruction | 7 fathoms 5 feet | 34° 09' 09.5" | 119° 14' 35.3" |
| Obstruction | 5 fathoms 2 feet | 34° 10' 03.0" | 119° 14' 25.8" |
| Obstruction | 10 fathoms 5 feet | 34° 07' 57.1" | 119° 15' 39.9" |
| Obstruction | 6 fathoms 2 feet | 34° 09' 27.2" | 119° 14' 23.6" |
| Obstruction | 6 fathoms 4 feet | 34° 07' 23.5" | 119° 11' 17.4" |
| Obstruction | 6 fathoms 5 feet | 34° 07' 53.1" | 119° 12' 16.6" |
| Obstruction | 6 fathoms 1 foot | 34° 08' 08.3" | 119° 12' 11.8" |
| Obstruction | 6 fathoms 5 feet | 34° 08' 02.8" | 119° 12' 24.5" |
| Obstruction | 8 fathoms 5 feet | 34° 07' 08.0" | 119° 11' 46.1" |

COMMENTS: The spar buoy was reported to have been placed by the Anacapa Sailing Club. The stated it was a permanent weather buoy. The buoy is white with a black W. The buoy is approximately 8 feet above the surface and 2 feet in diameter.

[Click here to view chartlet 18725](#)

Questions concerning this report should be directed to the Pacific Hydrographic Branch (N/CS34) at (206) 526-6836.

heavily traveled coastal waters, but a way to supersede or to alter the applicable Separation zones are intended to be free of separation zones should not be used except for crossing traffic lanes and separation zones

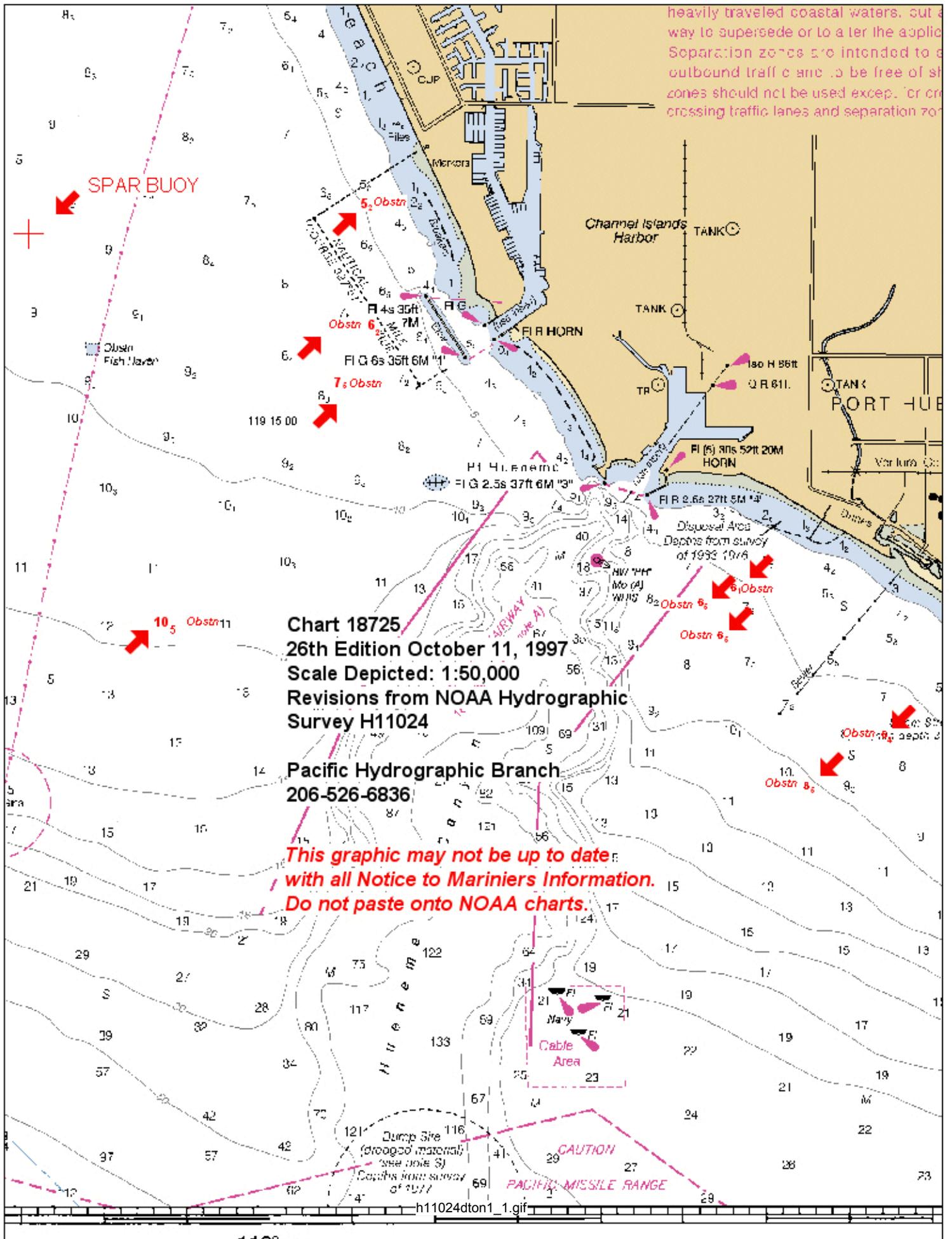


Chart 18725
26th Edition October 11, 1997
Scale Depicted: 1:50,000
Revisions from NOAA Hydrographic Survey H11024

Pacific Hydrographic Branch
206-526-6836

This graphic may not be up to date with all Notice to Mariners Information. Do not paste onto NOAA charts.

RECRD VESSLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK

NIMANUM

RECRD VESSLTERMS CHART AREA
 CARTOCODE SNDINGCODE DEPTH

| | | | | | |
|---------|--|---------|--|------------|-------------------------------------|
| LAT83 | <input type="text" value="34/08/05.60"/> | LONG83 | <input type="text" value="119/17/43.85"/> | NATIVDATUM | <input type="text" value="31"/> |
| LATDEC: | <input type="text" value="34.134888888889"/> | LONDEC: | <input type="text" value="119.29551388889"/> | GPQUALITY | <input type="text" value="Med"/> |
| | | | | GPSOURCE | <input type="text" value="Scaled"/> |

PROJECT ITEMSTATUS SEARCHTYPE
 RADIUS INIT ASSIGNED
 TECNIQ

Techniqnote

History

Fieldnote

DATE(S): 05/15/01 - 07/29/01
 VN: TIME: N/A
 INVESTIGATION METHODS USED: 100 % Multibeam
 SURVEYED POSITION: LAT. 34/08/10.6N LON. 119/17/43.9W
 POSITION DETERMINED BY: DIFFERENTIAL GPS
 INVESTIGATION SUMMARY:
 CHARTING RECOMMENDATION (HYDROGRAPHER): It is recommended that the chart reflects the least depths of 11 fathoms at 34/08/10.6N, 119/17/40.1W and 11 fathoms 5 feet at 34/08/03.46N, 119/17/40.11W. It is recommended that the danger curve reflect the debris outside of the existing danger curve.
 EVALUATOR COMMENTS:Revise danger curve as shown on smooth with least depth of 11 fathoms at latitude 34/08/10.6N, longitude 119/17/43.9W.

Proprietary

YEARSUNK NIMANUM

RECRD VESSLTERMS CHART AREA
 CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
 LATDEC: LONDEC: GPQUALITY
 GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
 RADIUS INIT ASSIGNED
 TECNIQ

Techniqnote

History

Fieldnote
 DATE(S): 05/15/01 - 07/29/01
 VN: TIME:N/A
 INVESTIGATION METHODS USED: 100% Multibeam
 SURVEYED POSITION: LAT. LON.
 POSITION DETERMINED BY: DIFFERENTIAL GPS
 INVESTIGATION SUMMARY:
 CHARTING RECOMMENDATION (HYDROGRAPHER): It is recommended that the area of the obstruction reflect the field of debris observed by the survey.
 EVALUATOR COMMENTS:Retain as charted. Chart surrounding area as shown on smooth sheet.

Proprietary

YEARSUNK NIMANUM

RECRD VESLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ
Techniqnote

History

Fieldnote

Proprietary

YEARSUNK NIMANUM

RECRD VESSLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK NIMANUM

RECRD VESSLTERMS CHART AREA
 CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
 LATDEC: LONDEC: GPQUALITY
 GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
 RADIUS INIT ASSIGNED
 TECHNIQ
 Techniqnote

History

THE AWOIS POSITION IS THE SCALED OFFSHORE END OF THE CHARTED FEATURE.
 CL1409/70--COE PERMIT & N TO M; PERMIT (SOUTHERN CALIFORNIA EDISON COMPANY) TO INSTALL TWO SUBMARINE PIPELINES AND A SHIP MOORING FACILITY OFF ORMAND BEACH, CA. THE TWO PIPELINES, 16" AND 36" IN DIAMETER, OF COATED CONCRETE, WILL EXTEND SEAWARD ABOUT 8200 FEET AND TERMINATE IN A WATER DEPTH OF 62 FEET MLLW. THE MOORING FACILITY WILL CONSIST OF 7 MOORING BUOYS, A SPAR BUOY AT THE END OF THE PIPELINES, A RADAR REFLECTOR SPAR BUOY, AND TWO HOSE MARKER BUOYS. ALSO NOTED IS THE ESTABLISHMENT OF A BUOY AT LAT. 34/07/24N, LONG.119/10/30W (NAD27) TO MARK A SUBMARINE CIRCULATING WATER CONDUIT TERMINAL.
 CL692/71--LTR FROM SOUTHERN CALIFORNIA EDISON COMPANY; LETTER IN REPLY TO AN NOS INQUIRY. NOTES THE EXISTENCE OF STEAMPLANT BASE LINES IN LAT 34/07/44N, LONG. 119/10/06W (NAD27) WITH THE DISCHARGE TERMINAL STRUCTURE AT LAT. 34/07/26N, LONG. 11910/24W (NAD27). ALSO NOTED A LIGHTED BUOY MARKING THE 100,000 DWT TANKER MOORING SYSTEM IN LAT.34/06/07.5N, LONG. 119/11/16.5W (NAD27). A HANDWRITTEN NOTE OF A TELECON INDICATES THAT THE FUEL PIPELINES AND THE MOORING FACILITY HAVE NOT BEEN CONSTRUCTED AND MAY NEVER BE CONSTRUCTED.
 BP80582-3--ENGINEERING DRAWINGS OF THE CIRCULATING WATER CONDUIT FACILITY. THE DRAWING INDICATES THE INTAKE AND DISCHARGE STRUCTURES TO BE AT A DEPTH OF 20 FEET MLLW. THE PIPELINES THEMSELVES ARE SHOWN TO BE BURIED BELOW THE BOTTOM. ALSO THESE DRAWINGS INDICATE THAT THE STRUCTURE TERMINALS ARE AS MUCH AS 2175 FEET OFFSHORE OF THE LOW WATER LINE.
 H09275/77--RA-20-1-77; SURVEY SHOWS THIS PIPELINE TO EXTEND APPROXIMATELY 2,200 FEET OFFSHORE FROM THE MHW LINE WITH A SOUNDING AT THE TERMINUS OF 3.3 FATHOMS. THE ASSOCIATED BUOY (A RED PRIVATE MAINTAINED BUOY "20B") IS SHOWN ON THE SURVEY AT THE OFFSHORE TERMINUS OF THE PIPELINE. (ENTERED 3/01 BY MBH)

Fieldnote

INVESTIGATION
 DATE(S): 05/15/01-07/29/01
 VN: TIME:N/A
 INVESTIGATION METHODS USED: 100% Multibeam
 SURVEYED POSITION: LAT. LON.
 POSITION DETERMINED BY: DIFFERENTIAL GPS
 INVESTIGATION SUMMARY:
 CHARTING RECOMMENDATION (HYDROGRAPHER): It is recommended that the least depth of 2 fathoms 5 feet supercede the charted depth. It is recommended that the buoy placement reflect the actual alignment of the submerged structures.
 EVALUATOR COMMENTS:Chart buoys at survey position. Revise chart note to reflect subm structures (2 fathoms 5 feet)

Proprietary

YEARSUNK NIMANUM

[Print Record](#)

RECRD
 VESLTERMS
 CHART
 AREA

 CARTOCODE
 SNDINGCODE
 DEPTH

LAT83
 LONG83
 NATIVDATUM

 LATDEC:
 LONDEC:
 GPQUALITY

 GPSOURCE

PROJECT
 ITEMSTATUS
 SEARCHTYPE

 RADIUS
 INIT
 ASSIGNED

 TECNIQ

Techniqnote

History

Fieldnote

 DATE(S): 05/15/01-07/29/01

 VN: TIME:N/A

 INVESTIGATION METHODS USED: 100% Multibeam

 SURVEYED POSITION: LAT. LON.

 POSITION DETERMINED BY: DIFFERENTIAL GPS

 INVESTIGATION SUMMARY:

 CHARTING RECOMMENDATION (HYDROGRAPHER): It is recommended that the moorings be removed from the chart.

 EVALUATOR COMMENTS:Delete charted lighted mooring buoys.

Proprietary

YEARSUNK
 NIMANUM

RECRD VESLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History

Fieldnote

Proprietary

YEARSUNK NIMANUM

HYDROGRAPHIC SURVEY STATISTICS

H-11024

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

| RECORD DESCRIPTION | | AMOUNT | RECORD DESCRIPTION | | AMOUNT |
|--------------------|-------------------|----------------------|------------------------------------|-----------|----------------------------|
| SMOOTH SHEET | | 1 | SMOOTH OVERLAYS: POS., ARC, EXCESS | | |
| DESCRIPTIVE REPORT | | 1 | FIELD SHEETS AND OTHER OVERLAYS | | |
| DESCRIP-TION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS | PRINTOUTS | ABSTRACTS/SOURCE DOCUMENTS |
| ACCORDION FILES | | | | | |
| ENVELOPES | | | | | |
| VOLUMES | | | | | |
| CAHIERS | | | | | |
| BOXES | | | | | |

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

| PROCESSING ACTIVITY | AMOUNTS | | |
|--|--------------|------------|--------|
| | VERIFICATION | EVALUATION | TOTALS |
| POSITIONS ON SHEET | | | |
| POSITIONS REVISED | | | |
| SOUNDINGS REVISED | | | |
| CONTROL STATIONS REVISED | | | |
| | TIME-HOURS | | |
| | VERIFICATION | EVALUATION | TOTALS |
| PRE-PROCESSING EXAMINATION | | | |
| VERIFICATION OF CONTROL | | | |
| VERIFICATION OF POSITIONS | | | |
| VERIFICATION OF SOUNDINGS | | | |
| VERIFICATION OF JUNCTIONS | | | |
| APPLICATION OF PHOTOBATHYMETRY | | | |
| SHORELINE APPLICATION/VERIFICATION | | | |
| COMPILATION OF SMOOTH SHEET | | | 23 |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | | |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | |
| EVALUATION REPORT | | | 58 |
| GEOGRAPHIC NAMES | | | |
| OTHER (Chart Compilation) | | | 55 |
| USE OTHER SIDE OF FORM FOR REMARKS | TOTALS | | 136 |

| | | | | |
|--|----------------|------------|-------------|------------|
| Pre-processing Examination by | Beginning Date | 12/05/2001 | Ending Date | |
| Verification of Field Data by G. NELSON | Time (Hours) | 23 | Ending Date | |
| Verification Check by | Time (Hours) | | Ending Date | |
| Evaluation and Analysis by G. NELSON, B. MIHAILOV | Time (Hours) | 58 | Ending Date | 02/10/2002 |
| Inspection by L. DEODATO | Time (Hours) | 12 | Ending Date | 10/18/2002 |

APPROVAL SHEET
H-11024

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.



Dennis Hill,
Chief, Cartographic Team
Pacific Hydrographic Branch

Date: 10-22-02

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

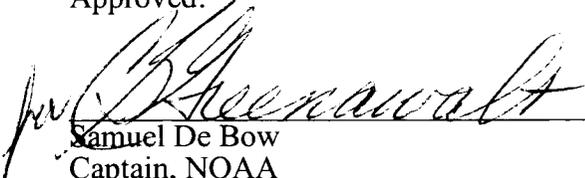


John E. Lowell, Jr.
Commander, NOAA
Chief, Pacific Hydrographic Branch

Date: 10-24-02

Final Approval

Approved:



Samuel De Bow
Captain, NOAA
Chief, Hydrographic Surveys Division

Date: 04 Nov 02

AWOIS ✓ & SURF ✓ by MBH on 10-29-02

